

Understanding Institutions and Their Links to Resource Management from the Perspective of New Institutionalism

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Figure 1: Modelling change Source: Jean Ensminger (Ensminger 1992:10)

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1 Introduction

When environmental issues are at stake, analysis often focuses on the way renewable resources are managed or mismanaged by local people. Adams (1990) showed that the respective discussions centred in the past on the issue of mismanagement and led to initial approaches to environmental conservation – approaches that were biased by the view that local inhabitants in so-called Third World countries are at the centre of the problem. Or to put it polemically: While white men in Africa were hunters, Africans were regarded as poachers (ibid). Other studies on Africa take the view, for example, that forests are being cut down by a growing population extending their agricultural production (see Fairhead and Leach 1996). Most of these works draw attention to colonial bias, which was still dominant among resource use planners until the 1990s.

Perhaps one of the most important contributions to the view that local inhabitants ruin their resource base was the article by Garret Hardin entitled the “Tragedy of the Commons,” published in 1968. In this work, the links between resource management and institutions are important, for the article focuses on a crucial issue regarding sustainable resource management, i.e. property rights. Hardin attacked the property rights regime – a regime found largely in Third World countries – which he called common property. For Hardin, common property resources were free or open access resources: no one feels responsible to look after the regeneration of a resource such as a pasture (or a fishing ground, forest, wildlife population, etc.) as long as it does not belong to him or her personally. Even more problematic for Hardin was the fact that people who restrain themselves from maximum use of a resource in order to let it regenerate are on the losing side: there will always be other users consuming as much as they can, and the “conservationists” will be left with nothing. This constellation is the “prisoner’s dilemma” in game theory, in which even those who want to conserve the resource base go for maximum use. Hardin perceived this as the tragedy, for he did not see a way out for local users. He saw them as unable to create rules – institutions – to regulate resource use at a level that does not lead to resource destruction. For him, the only solution was in the control of common property resources by a central government or – as advocated by neoclassical economists – transformation of the commons into private property (Acheson 1989, Feeney et al. 1990). The tragedy bias was already present in colonial discourse and was actually bundled by Hardin. But it led many governments to take resource rights and responsibilities out of the hands of local groups and to legitimise this move by pointing out that existing overuse of forests, wildlife, fisheries and pastures was the result of this tragedy.

Many authors subsequently showed that Hardin had misinterpreted common property as an open access system, and they demonstrated that cases where resources were not part of any property system (i.e. open access) were indeed very rare. Most of the time resources scattered over wide ranges, and not concentrated in one spot, are owned by a local groups, village groups, lineages, or kinship groups. These resources belong to no one but the members of a particular group (Acheson 1989). Access was allowed only for members of the group, and outsiders who asked permission for access would either

receive it or be denied. Anthropological research has also shown that such groups of users usually have rules and norms regulating the amount of consumption of resources (time scales, quotas, technical regulations, etc). Additionally, there are monitoring and sanctioning boards (councils of elders, priests, young men, i.e. warrior age classes). Close face-to-face interaction in a small-scale society, where social control is everywhere, can also be regarded as a monitoring and sanctioning device.

It then becomes an important and very interesting task to determine in a particular community how local resources were and still are governed by what the present paper refers to as *institutions* – regulatory devices that define who is allowed to use what kind of resource at what time and under what circumstances.

But the challenge of “overuse syndromes” must also be dealt with, although it can be proven that institutions operate in a community or on a larger societal level. It is then necessary to show historically – and usually in societies with no written records – what kinds of rules operated, for example, to govern the use of pastures, and why such institutions no longer work today. There are demographic, technological, economic and political aspects to be considered in such an analysis. The expansion of the Western world in different stages is one of the most important milestones in this analysis. A second milestone was the time when colonies allegedly became independent. Newly governed entities, in colonial and post-colonial times, had to face new institutions established in writing and therefore formalised by state law and controlled by governments. This dual existence of so-called customary law and government laws and regulations is at the heart of ambivalence and insecurity, where theories of institutions, and particularly the New Institutionalism, can provide insights and help mitigate syndromes of resource overuse.

2 New Institutionalism: Methodological Individualism and the Role of Transaction Costs

The term “New” Institutionalism implies an “Old” school of thought. This is usually brought up in connection with economists such as Veblen, Commons, and Mitchell. Veblen’s position in particular (see Veblen 1919) was that institutions generally play an important role in economic actions, but he never clearly defined this role. His position seems to be more an assumption that rules in a society are important for economic decisions, and that the portrait of the individual “Economic Man” must be rejected, as it does not explain economic evolution and technological transformation. Generally, individual conduct is shaped by relations of an institutional nature, by means of which Veblen suggested an alternative to the theory of the rational individual being able to calculate everything (Hodgson 1993). But the role of institutions in the decisions of actors was never systematically presented by the old school of institutionalism (ibid).

An initial step towards a new approach to institutions can be found in Ronald Coase’s theory of the firm (Coase 1937). Coase tried to show why this form of capitalist economic organisation was important. In the structure of a firm, transactions are organized by rules, at costs lower than the costs that would ensure if each and every individual member of the working force were to be hired separately (the role transaction costs play in the new theory will be discussed later).

To put the New Institutionalism in a general theoretical context to explain patterns of resource use, the focus must be on two important points: methodological individualism and the role of transaction costs.

Platteau’s explanations of the first point are useful and put the New Institutionalism into a wider perspective (Platteau 2000). When Karl Marx was examining institutions in terms of the dialectical interplay of productive forces and production, enumerating in the latter property arrangements such as institutional rules for property rights assignments, he placed them at a societal level. In the contradiction between productive forces and these institutional relations, adjustments are made in a process by which change takes place in the form of a revolution. In this way, social rules are newly defined but expressed in material terms as a productive force. Boserup (1965) also emphasises population growth by showing that, even in pre-capitalist societies, growth did not lead to a decline in agrarian output. On the contrary, she argues, it led to the use of intensified techniques and new institutional arrangements. With population growth, more intensive patterns of land use are employed, even in pre-capitalist systems. Thus it is no surprise that in an agrarian system with annual cropping, private property rights relating to land are found, while in long-fallow agriculture this is not the case (Boserup 1965, Platteau 2000).

For Marx and Boserup, the view is a collective one, but this is not the case with the New Institutional Economics (NIE), as expressed by one exponent of New Institutional thought. Platteau states that NIE provides “bourgeois” answers to Marxist ques-

tions. NIE shares with Marx the view that institutions are useful at one point in time but come into conflict during future developments. NIE assumes that it is not the supra-individual level that is important; rather, analysis needs to be done at the individual level. So for NIE and for other New Institutionalists as well, the basic assumption is that the individual is rational, sometimes rationally bounded, and is a self-interested actor who attempts to secure his/her outcome. However, this does not bring us back to the old neo-classical point of view. What is of interest in the action-choice framework of NIE is the idea that individuals seek the best possible outcome, and institutional change comes about through the aggregation of decisions taken by bounded rational actors (North 1990, Ensminger 1992, Gibson 1999, Platteau 2000). Given her micro-economic foundation, Boserup is closer to the NIE than Marx (Platteau 2000).

The ways in which such institutions evolve and change, and the influence they have on the economic strategies of individuals and groups of actors, are issues debated by different theories in economic history, political science and anthropology. Different approaches can be subsumed under the label of New Institutionalism (Olson 1965, North and Thomas 1973, North, 1981, 1990, Ostrom 1990, Ensminger 1992, 1998, Broomley 1992, Becker and Ostrom 1995, Ruttan 1998, Gibson 1999). Institutions are seen here as formal and informal “rules of the game,” such as constraints, norms, values and rules. These give incentives to groups and individuals, and also structure human action and interaction, especially in economic activities, collective action, and in sustainable resource use. They help individuals form expectations about the conduct of others and thereby enable co-ordination and cooperation. Institutions such as property rights systems or laws are developed by the state (formal institutions) or by local communities, where they are embedded in their culture (informal institutions; North 1990, Ostrom 1990, Ensminger 1992, 1998).

An important aspect in explaining how institutions operate is illustrated by the work of economists such as Douglass North (1990). He not only states that institutions matter for economic activities (Old Institutionalism), but that if they work properly, they reduce *transaction costs*. These are the costs that arise when two people engage in an economic transaction, which is, as Ronald Coase (1937) has shown, costly. To make a transaction, one has to have information about product quality and about the behaviour of other actors. One also has to monitor trading partners and sanction them when they cheat. All these activities are costly because they consume time and resources (North 1990).

In the case of the management of common property resources (CPR), Ruttan (1998) shows another interesting aspect focusing on the gains arising from co-operative institutions: She establishes the hypothesis that CPR institutions follow the principle of “restraint for gain”. If users are able to agree on what rules should be operative, it becomes possible to take advantage of such renewable resources as fish stocks when they are well developed and, therefore, most profitable. Because of this, very good fish catches can be enjoyed at low costs. The primary condition for this is the efficient functioning of rules. Two forms are principally responsible for the development of co-operative rules, as seen in CPR institutions: CPR institutions can develop under the rule of reciprocity (“reciprocal altruism”) or under a form of asymmetrical power relations (“asymmetric reciprocity”). In “reciprocal altruism” the different actors can profit from

co-operation, for example, if they allow access to the resource by foreign users, because at a later time they may be able to benefit from the resources of those foreign users. “Asymmetrical altruism” refers to co-operation in an unbalanced situation of power relations. In this situation, co-operation may be extended by the side with less power, even when the party on this side benefits less than the stronger side, because the benefit is still greater than when there is no co-operation at all. In this context, the focus is on power relationships. As a result, power relations are a major research issue.

The interesting thing about looking at this theory in analysing CPR management is the fact that it raises questions about other theories long thought to be true. In the debate on common property and sustainability, the notion of Garret Hardin’s “Tragedy of the Commons” paradigm mentioned above (Hardin 1968) is actually undermined by a close look at how CPR institutions operate. Elinor Ostrom’s work illustrates this by analysing different CPR institutions and their management by local communities all over the world. Examination of successfully operating, locally developed institutions that use natural resources such as forests, irrigation water, fisheries and pastures in sustainable ways resulted in the development of eight design principles (DPs) for effective institutions (see Box below).

Clearly defined boundaries

The boundaries of resource systems (e.g. groundwater, basins or forests) and the individuals or households with rights to harvest resource products are clearly defined.

Proportional equivalence between costs and benefits

Rules specifying the amount of resource products allocated to a user are related to local conditions and to rules requiring labour, materials and/or inputs of money.

Collective choice arrangements

Most individuals affected by harvesting and protection rules are included in the group who can modify these rules.

Monitoring

Monitors, who actively audit physical conditions and user behaviour, are at least partially accountable to the users and/or are users themselves.

Graduated sanctions

Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from the users, from officials accountable to these users, or from both.

Conflict resolution mechanisms

Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials.

Minimal recognition of rights to organise

The rights of users to devise their own institutions are not challenged by external governmental authorities, and users have long-term tenure rights to the resource.

Nested enterprises (for resources that are part of larger systems)

Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organised in multiple layers of nested enterprises.

Source: Becker and Ostrom 1995:119 from Ostrom 1990:56f.

All these design principles can actually be included in the notion of transaction costs. If CPR institutions operate properly, they in fact reduce these costs.

But Ostrom clearly shows that the DPs are not universal rules that guarantee success in all situations. Moreover, these are principles to be adapted to local conditions. In an article published with Dustin Becker (Becker and Ostrom 1995), Ostrom argues that institutional diversity found among local communities is often better adapted to the variability and insecurities in chaotic ecosystems (e.g. changes in fish stock populations) than strategies based on biological-mathematical models.¹

Additionally, two of Becker and Ostrom's eight aspects (regarded as important for the building up of new institutions) are particularly relevant:

- Do the actors involved have common or different interests (homogeneity or heterogeneity of interests)?
- How do actors value the future in respect to the resource in question? Or to put it differently, is current resource use more important than future use (low or high discounting rate for the future)?

Economic heterogeneity and high discounting rates for the future make it very difficult to establish long-term CPR institutions for sustainable use, as it is much more difficult to act collectively and develop rules for sustainable resource use in situations where everyone pursues their own interests. Additionally, when there are high discounting rates for the future, rational users seek to use up a resource as fast as possible, because what remains is immediately used by others. In this situation, the value of preserving resources for later use is close to zero. These two aspects lead to overuse of renewable resources (Becker and Ostrom 1995).

There has been some criticism of this approach, centring especially on methodological individualism, its formalistic aspects, and its blindness to historical and social context. This criticism comes from scientists who deal with evolutionary economics (Nelson 1995) and from development studies that address problems of participation such as the "New Tyranny" (see Cleaver 2001).

Cleaver points out that the rational choice theorem of methodological individualism is not suited for an analysis that helps to solve problems of participation in development. This point seems unjustified, as Cleaver's work and the well-formulated criticism of participatory approaches show. The critical factor in development projects is the incentive (be it economic, political, social, psychological or so-called "cultural") an individual has in relation to his/her position in the community or society. To study this carefully is one of the aims of the New Institutionalism.

¹ There is much debate on the concept of maximum sustainable yield in fisheries, because it is extremely difficult to define the maximum catch without overusing the fish stock. This is due to the fact that one is unable to predict the exact fish population size, as it depends on the complex interactions in ecosystems (Becker and Ostrom 1995). Ostrom and Becker argue that it is therefore much better to analyse local strategies of resource use before making recommendations to local people (ibid.).

Secondly, it is difficult to grasp Cleaver's critique of Ostrom's approach to institutions. As Cleaver understands it, Ostrom opts for a formalisation of institutions that can have negative effects, for example, by excluding those who are unable to participate in a development project for financial reasons or for reasons relating to their household workforce. An additional criticism is that only formal institutions (the state or a development corporation) are the solution to the problem. However, Ostrom goes beyond drawing lessons from successful cases all over the world that do not merely rely on the "formal" side of institutions. On the contrary, she stresses that so-called informal institutions embedded in a specific culture are as successful as formal ones, or even more successful. Additionally, she opts for recognition of local and indigenous knowledge of resource flows. Cleaver is right in regard to the first principle – clear boundaries – when he maintains that these sometimes cannot be as clearly defined as Ostrom's work suggests, especially when considering changes in resource flows from one season to another. But this can be easily incorporated in the approach, as will be demonstrated by the example of African floodplain wetlands (see below). Additionally, it is clear that distinctions between "formal" and "informal" institutions are delicate; traditional (and some would say informal) institutions can be as formalised or even more formalised than institutions built up by the state. But this critique has also already been incorporated in the analysis of examples (see below).

Thirdly, the author of the present paper does not agree with the critique that the approach makes no reference in historical and social processes. As demonstrated in the next chapter, one major contribution to the approach draws on a historical analysis. The New Institutional Economics (NIE) as developed by Douglass North (1990) definitely has a historical approach, as North is known for his work in economic history. This in turn is the basis for the important work of the American anthropologist Jean Ensminger, who has attempted to define a new institutional economic anthropology where institutional change is the major focus.

It must be stressed here, however, that Cleaver does not go into these theories, as only Ostrom is cited, but the approach criticised definitely has more to offer. While the author agrees strongly with the points Cleaver raises against a simplistic participatory approach in development – for example, a meeting is not yet a real sign of participation in a development project, nor is frequency of speaking up in a meeting – a well-understood New Institutionalism can actually provide answers to the pitfalls of participation as a *New Tyranny* (the title of the publication where Cleaver's article can be found). Much interesting research has been done using this approach; for example, the article by Benjaminsen (1997) on decentralisation in Mali, and the publication by Venema and van den Breemer (1999) on negotiated co-management of natural resources in Africa. These publications present cases of successful development as well as unsuccessful cases leading to overuse of natural resources.

3 Theories of Institutional Change

In her book *Making a Market*, Ensminger presents analytical tools for discussing constellations of overuse of resources and conflicts from an NIE perspective. Ensminger has worked among the Orma, a semi-sedentarized pastoralist group in Kenya (Ensminger 1992). She looks at changes which were (and still are) taking place among the Orma as a group and deals with the incentives of the different families and individuals due to a market economy and changes in political, economic and social institutions. When analysing change, Ensminger states that one has to look at the individual motivations of different actors and delve into the social constraints and incentives that influence what people are striving for.

There is, for Ensminger, interaction among the endogenous aspects of a society in which individuals live, composed of *institutions, ideology, organisation and bargaining power* (see Diagram 1). Ideology consists of the way people explain the world and their values. Institutions, as Douglass North (1990) sees it, are the “rules of the game” in a society, the formal and informal rules, values, norms and constraints, which provide incentives for individual action and reliability. Institutions enable co-operation. Organisation refers to a body in which people organise themselves and act collectively. Bargaining power means the ability of an actor to get something he or she wants from someone. But this is a bargaining process. The bargaining power of individuals can come from social status, wealth or the ability to manipulate ideology (Ensminger 1992: 5-7). These four endogenous spheres (ideology, institutions, organisation and bargaining power) influence one another and are themselves influenced by external factors. These external factors are the social and physical environment (changes in the socio-political structure and natural environment), population (demographic changes) and technology (technological changes), which together influence so-called “relative prices.” By this term Ensminger means externally influenced changes in prices for goods in relation to other goods (for example, a rise in cattle or fish prices compared to other goods). In the case of the Orma, lower transportation and communication costs have opened up more possibilities to trade cattle due to closer markets and slaughter-houses, and also brought higher prices for cattle. Ensminger speaks of relative prices because the decision taken by an individual depends on the value of a good in relation to another good.

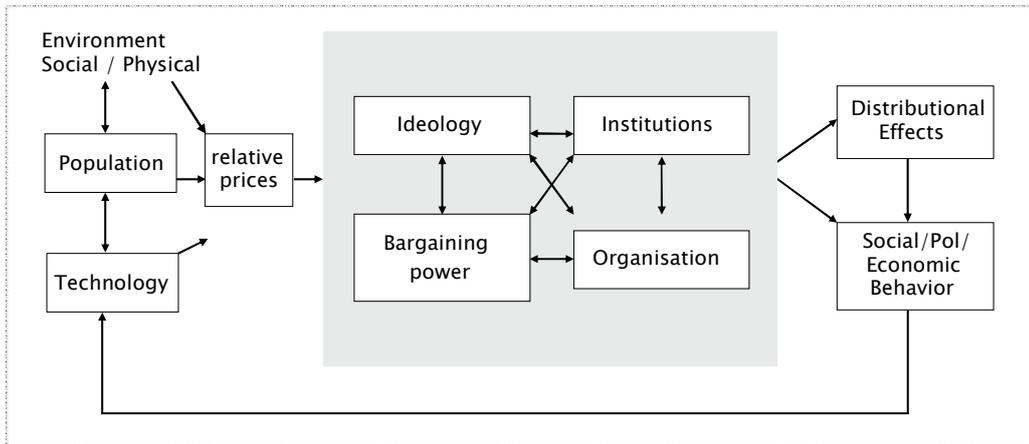


Figure 1: Modelling change
Source: Jean Ensminger (Ensminger 1992:10)

But on a larger scale as well, the author would incorporate in this notion changes in the political and economic environment (pacification, new urban centres and new markets, monetarisation), state control (laws, police, administrators), and infrastructure and transport systems (lowering costs for marketing or access by other groups, etc.).

In discussing these processes, economists and anthropologists differ. Economists tend to regard institutions as constant while concentrating on the aspect of change in exogenous factors such as relative prices and the outcome of individual behaviour. But anthropologists, when referring to change, tend to see relative prices as given and focus on institutions when explaining economic action. Ensminger suggests alternating between the two poles, where both sides influence each other. The demographic-environmental-technological variables influence relative prices, which change the endogenous variables. These variables influence aspects of distribution and individual socio-economic behaviour, which leads to exogenous variables by way of a feedback loop. One needs to see where the individual stands and which structures influence his/her motivation, and his/her relative bargaining power from case to case. Ensminger shows that individuals who gain more bargaining power in a changed situation also change the institutions, eradicate them, or create new ones (Ensminger 1992, Ensminger and Knight 1997). In agreement with Douglass North, she does not argue that the best institutions are always selected, but rather that those that survive are those which usually serve the people with the most bargaining power.

Ensminger shows how pastures held as common property among the Orma are being transformed into private property. Before this process of “dismantling a pastoral commons” occurred (Ensminger), the council of elders and the sedentary local population were unable to keep the pastures from being used by nomadic pastoralists (nomadic Orma and Somali with their cattle). The reason for this was heterogeneity of interests among the sedentary village group due to different economic interests. Some of the villagers benefited from the nomads by obtaining cattle and milk, while others did not. The village group was thus unable to come to an agreement or to monitor the pasture collectively. In this situation, pastures were increasingly privatised and the power to

exclude outsiders was taken from the council of elders and given to the government-selected chief, who had good contacts with the state and its forces and thus had much more bargaining power than the elders (Ensminger 1992).

It is this last aspect which is very important for research on resource management issues using the New Institutionalism. How is bargaining power changed or newly distributed by changes in relative prices in a specific area of resource use such as CPR situations? Is it true that users with greater bargaining power stemming from their political or financial power (locally or through governmental institutions) are able to privatise former CPRs or manipulate the institutions that govern access to CPRs? Additionally, it will be interesting to see what kind of strategies former users who lost their CPRs will pursue. According to our hypothesis, they will seek scarcer resources, over-use resources, or act violently against outsiders in order to gain more bargaining power (Moorehead 1989, Thomas 1996).

4 An Illustrative Example: Institutions and Institutional Change in African Floodplains

In order to illustrate the theoretical approach of the New Institutionalism, an example of a research project on African Floodplain wetlands, initiated under NCCR/IP6 (Livelihood strategies and institutions) is given here. The project incorporates research and analysis on five floodplain wetlands in Africa (Mali, Cameroon, Tanzania, Zambia and Botswana) from which two research areas are included in this NCCR (the Waza-Logone-Area in northern Cameroon and the Pangani and Rufiji River areas in Tanzania). For the purpose of this paper, examples are drawn from cases in Mali and Nigeria:

Traditional institutions in African floodplain wetlands

Several IUCN reports regard African wetlands as ecosystems of major importance for protection and conservation. Wetlands harbour resources that are very important for a large number of ethnic groups differentiated by their economies. This project focuses on so-called inland wetlands in semi-arid areas (Stevenson and Frazier 1999:12), which are found in floodplains (Hughes and Hughes 1992). Regions like the Internal Niger Delta in Mali, the Okavango Delta in Botswana, but also floodplains like the Hadejia-Jama'ra in Nigeria, the Logone and Chari floodplains in Northern Cameroon, the Pangani and Rufiji rivers in Tanzania, and the Kafue Flats in Zambia all offer a highly diversified resource base for local communities.

The Internal Delta of the Niger in Mali, for example, is used differently by peasants, agro-pastoralists, nomadic pastoralists, and sedentary and transhumant fishermen (Moorehead 1989). The critical ecological variables are the seasonal rains that occur partly locally and partly in remoter mountainous areas, feed the rivers, and lead to rising water levels in these river systems. As a consequence, large areas adjacent to the rivers are inundated. These floods, as well as the receding of floods, give the local people different access to renewable natural resources such as fish, pastures, wildlife, gathered products, fertile soils, and water for irrigation. The accessibility of these resources, which are held as common property by local groups most of the time, can vary from year to year.

Ethnic groups have developed institutions to manage the CPRs in these areas (Moorehead 1989). Depending on the season, there are rules by which decisions are made, e.g. who can have access to which CPRs, who is excluded (*rules of access*), etc. Those allowed access are able to use an amount of the resource, at a certain time and under certain circumstances (*rules of use*). These rules were developed long before the time of the Fulbe ethnic group's hegemony in the 19th century, although they were formalised by them. Central to the issue of who is allowed to use these CPRs is the question of who the "indigenous people" in an area are, and to whom it is possible to give or deny access to resources (ibid. 263). Even today the first users of these areas are said to be the masters of the earth or the masters of the water. Apart from conducting rituals

for local spirits of the land and the water, they have a duty to organise resource allocation for different user groups and individuals. This often happens in co-operation with a council of elders (ibid.: 264f.).

Due to the seasonal variability of the resources in these regions, different tenure systems governing the use of resources are important. As mentioned above, most of the time these resources are held in common and use is regulated by the common property institutions of a local community. But there are situations – such as the flooding of a very large area during the rainy season – in which resources such as fish are open access resources. In this situation, all users can fish without restriction. It is only when the floods recede and the water returns to the river bed and remains in ponds, little lakes and swamps, that the fish are again a CPR of neighbouring villages. Wetlands that are too small and dry up become private property. The same is the case with individually owned fish traps such as differently sized baskets (Thomas 1996).

These different tenure systems, which match seasonal variation and the accessibility of the resources, can best be explained by the so called “*economic defendability model*” developed by Dyson–Hudson and Smith (1978). This model predicts that resources used in open access tenure are those that cannot be defended or do not have to be defended because they are a) too scarce, or b) too abundant to be monopolised by a group of people collectively. But if the resources can be found locally in more concentrated form, they become scarcer and so it is possible to restrain access by other users. Therefore, CPRs are resources with specific accessibility where it makes more economic sense for local actors to bear the defence costs collectively than to leave them in private property tenure. Private property would be too expensive due to defence costs. This tenure only makes sense if the resources are available in very high concentration. But rules of tenure must also be seen in respect to risk and insecurity. Risks in a hazardous ecosystem can be addressed by local communities with a CPR tenure system. These systems offer the users a wide range of access to resources, which can minimise the risk of being without resources (so called *minimax strategy*, in which profit is not maximised but a level of food production for subsistence needs is secured). Moreover, rules governing the access of foreign user groups can be seen as a *minimax strategy* in order to reduce risk. These rules offer access to CPRs on the basis of reciprocity for some foreign groups – if, in times of disaster, foreign groups can gain access to a local user group’s CPRs, profiting from the CPRs of the former host in times of need (Thomas 1996).

Institutional change in African floodplain wetlands

Moorehead (1989) and Thomas (1996) show the changes taking place in the African floodplain areas. During colonial and during post-colonial times, control over and responsibility for resource management were increasingly taken out of the hands of local user groups by the state. In most cases the state now defines the rules of access to CPRs. It decides who, when, and how access to resources is given by distributing licences and permits to those able to pay the highest price. The state is also responsible for the most significant impacts on floodplain ecosystems, with mostly negative consequences for the natural resources and the local population: In many African river systems, dams were or are being constructed in order to produce electricity for the cities and to facili-

tate large irrigation programmes. These activities reduce the water flow into the plains normally inundated by the rivers. It is argued that the drastic reduction in resources such as fish is connected with low water levels (Loimeier 1986, Moorehead 1989, Chabwela 1992, Hollis 1992, Thomas 1996).²

But there are also other reasons for the massive overuse of CPRs in floodplain wetlands and deltas. Monetisation and commercialisation of resources, as well as institutional rules changed by the state or influenced by powerful local and national actors with capital, have led to monopoly constellations and the overuse of former CPRs. There are massive conflicts between users, too, which could be shaped by ethnicity. These conflicts develop because new users from the cities are gaining access to CPRs. This is possible due to their financial and political capital, which helps them gain exclusive rights of access often guaranteed by the state. As a consequence, overuse of resources occurs due to newcomers operating with better fishing technology (motor boats, tighter mesh nets, etc.), better guns, or bigger cattle herds. Fish and wildlife are then sold at markets and the big cattle herds, which are also sold, overgraze the pastures. These resources are no longer available for local communities, making it more and more difficult for them to cover their subsistence needs. For the most part, local people do not have the money to buy food at the local or regional markets. They are forced to switch to more marginal resources, which are then overexploited in order to make a living. Under these circumstances anger among local CPR users rises. They become willing to use violence against the newcomers and against one another in the fight over resources that are becoming increasingly scarcer (for cases in Northern Nigeria see Thomas 1996, for Mali see Morehead 1989 and Fay 1994, 2000).

Tension also rises within local communities because adoption of new technologies and the possibilities of new market options have led to erosion of the traditional monitoring structures and organisations which once ruled the use of the CPRs. Young Somono and Bozo fishermen in Mali, for example, who now fish individually with motorboats and nylon nets, are no longer forced to co-operate with other people from their fishing communities. The lighter nylon nets have made them independent, because no co-operative work is needed, compared with the older nets in the past, which were heavier. The motorboats enable them to travel faster anywhere they want and also to where they can sell their catch on the market beyond the control of their village communities or elders (Fay 1994, 2000).

² There are also authors who focus on some of the positive consequences of large dams, like the improved regulation of water flows, which reduces variability (Machena 1992, Massinga 1992). But it is important to underline that this kind of regulation of flooding does not seem to correspond to the reproductive activities of some fish species that depend on the specific time of the flooding of low areas of the floodplains in order to spawn. The biological cycle – adapted to some variability – is disrupted by regulated flooding all year long, which may result in a lower reproduction rate (Beeler and Frei, personal communication 2001). Additionally, Chabwela argues that in the Kafue Flats the two hydroelectric dams of Kafue Gorge (1972) and Itezhi-tezhi (1977) have been causing many problems and social costs for local inhabitants. Parts of the grazing ground have been lost to weeds. Therefore, cattle herders are now obliged to travel long distances to the rivers. Most inhabitants living inside the Kafue Flats have been displaced far away and have difficulties coping with artificially regulated water regimes. Moreover, they do not benefit from hydroelectric power, which is directed to urban areas (Chabwela 1992: 13-14).

Persistence and change in old institutions

But change in institutions does not always operate in terms of the eradication of older rules and values. “Old” traditions can continue to exist under certain circumstances, while others vanish totally. But the ones that do not vanish are not necessarily unchanged.

The processes of change briefly outlined above in Mali and Nigeria illustrate that locally developed institutions that were working 40 years ago are not working anymore. The reasons are that they have been altered by the powerful and have also been subject to a monetarising process (a significant change in relative prices) that changed the institutional setting in a specific way. The hypotheses which will be tested in the project on African floodplain wetlands suggest that traditional institutions that can be monetarised will stay in place, while those that impede or hinder adaptation by local users in order to earn cash with these resources will be rejected. Cash is needed not only for consumer goods in a globalised world, but also for the construction of social networks (marriage, etc. See Elwert 1985, 1989, Berry 1989, 1993, Haller 2001).

An illustration of this process will be offered in conclusion: the Bozo fishermen in Mali and monetarisation of the institution known as *manga ji*. The traditional meaning of *manga ji* is an offering to the Master of the Water in the Bozo group from outside fishermen (a third of their catch, literally translated as “part of the water”) as a compensation for the Master of the Water, who dealt with the water spirits to maintain order. This idea of a traditional institution has been transformed completely. It remains in name, but is converted into monetary rent for many people who claim to be traditionally related to this right. This is not only true for the Masters of the Water, but also for other individuals and groups, and even the administrators who deal with this notion in order to obtain cash. The notion of the *manga ji* as monetary rent gives way to a stricter idea of territoriality as well, which had not been the case in pre-colonial times. This notion is fostered by those who are able to gain the most from the commercialisation of the fisheries, and therefore those with bargaining power, namely some of the Masters of the Water, traders and administrators.

Competition is taking place at all levels to secure funding, which can be obtained by making reference to traditional institutions or to the altered versions of these institutions. The change in the traditional meaning of *manga ji* clearly illustrates this tendency. All that remains of the traditional institutions is the monetary aspect. The original content and purpose has been erased completely (Fay 1994, 2000). Transformations and losses of older institutions can be shown as well in other very different examples such as pastoralism in Kenya (Little 1985) or traditional intensive peasantry in the Mandara Mountains of Northern Cameroon (Haller 1999, 2000, 2001). In these examples, institutions that govern access to pastures, maintenance of terraced fields that prevents soil erosion, and storage of staple crop sorghum for hazardous times – sometimes embedded in religious beliefs – are given up in favour of short-term monetary gain now essential for social life (for example cash for bride price, school fees for children, health stations, clothes, etc.). What is striking about these examples is the fact that other traditional institutional rules, which favour individuals with more bargaining power in order

to get access to cash income, are retained despite the negative impact they have on sustainable resource use (Haller 2002).

Last but not least, it is important to have a close look at the institutional “portfolio” available to local actors. It is not only the fact that formal institutions override traditional ones. They can, of course, when largely transformed, stay at the same level side by side, and be used depending on the situation. As Fay (1994, 2000) shows in Mali, people can use governmental institutions as a reference if they claim resource rights as citizens of a district, while in another situation they may refer to their rights as relatives of the Master of the Water of an area. Similarly, Lund (1998) shows among peasants in Niger that Islamic state and traditional kinship institutions are chosen by individuals, depending on the strategic situation, in order to claim rights to land before a court or on a local level. All these aspects involve the notion of ideology brought into the theoretical framework of the New Institutionalism by Jean Ensminger (1992).

5 Conclusions

The present paper presents a summary of the New Institutionalism with regard to questions of sustainable resource use and illustrates this with examples. It is far from a complete outline of the issue, and must be regarded as a sketchy attempt to enable researchers in the NCCR to learn more about this approach. First, from the perspective of the New Institutionalism, it is important to analyse the historical context in which institutions evolved locally. Secondly, it should be possible with this approach to determine the forces at an individual level which, when aggregated, lead to changes in institutions. Thirdly, the important contribution from economists is the fact that they have drawn attention to the factor of transaction costs and changes in relative prices. Political scientists have drawn attention to the interaction between state and local actors, and the fact that local-level enforcement, homogeneity of interests, and recognition of traditional knowledge are crucial in designing new institutions for the sustainable use of resources. Anthropologists, however, show the role of bargaining power and ideology, represented by religion or social norms. They see bargaining power as a possibility for shaping institutional design by the more powerful, due also to changes in relative prices. Ideology then plays a major role in new opportunities for legitimising claims of access to resources and enabling people to switch between different ideological settings provided, for example, by competing religions (Islam, Christianity, Animism (see Ensminger 1992, Ensminger, J. and Knight J. 1997). The same is true of “informal” customary and “formalised” state law (see Lund 1998).

The author’s own contribution to the issue is the following hypothesis: Some old institutions persist because they can be adapted to monetary needs. Others, that could play a positive role in a sustainable use of natural resources, are eradicated completely because they hinder individual access to cash for the powerful in a group and outside a group (Haller 2001, 2002).

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When environmental issues are at stake, analysis of renewable resource use frequently focuses on unrestricted use by local people who hold them as commons. It is then often believed that resources are perceived as free for all, leading to the overuse of resources (a “tragedy of the commons”). However, critiques of such approaches argue that commons are not open access but usually the property of specific groups who define and enforce rules and regulations (institutions) for inclusion and exclusion of resource users.

The present paper considers the theory of New Institutionalism and how it helps to understand livelihood strategies and institutional change with respect to resource management (Ostrom 1990, Ensminger 1992, Acheson 2003). As an actor-oriented theory applied in economics, political science and anthropology, New Institutionalism takes account of the role of formal and informal institutions (rules, norms, values and law) in decreasing or increasing resource management transaction costs by creating predictability of resource users. The paper argues that this approach is a useful tool for discussing livelihood strategies. New Institutionalism looks at the design of locally developed institutions (Ostrom 1990); in a newer version developed within anthropology, Ensminger focuses more closely on how bargaining power and ideology are changing due to externally driven changes in relative prices (Ensminger 1992). To illustrate the approach, an example of institutional changes in African floodplain wetlands is presented.